

Claims

What is claimed is:

1. A method comprising:
  - 5       • exchanging scheduling information with at least one compatible communication node in a wireless communication network;
  - determining a communication schedule for communications with the at least one compatible communication node based on the scheduling information; and
  - 10       • communicating with the at least one compatible communication node based on the communication schedule, wherein communication nodes in the wireless communication network independently determine communication schedules with other compatible communication nodes.
- 15   2. The method of claim 1 wherein communications with each of the at least one compatible communication node are established over at least one corresponding communication link, which does not contend with other communication links in the wireless communication network during scheduled communications.
- 20   3. The method of claim 1 wherein communications with the at least one compatible communication node are established over a plurality of communication links, which do not contend with each other or with other communication links in the wireless communication network during scheduled communications.
- 25   4. The method of claim 1 wherein the at least one compatible communication node is a plurality of compatible communication nodes and at least one communication schedule is established for controlling communications with each of the plurality of compatible communication nodes.

5. The method of claim 4 wherein scheduling embodied in the at least one communication schedule for each of the plurality of compatible communication nodes within the at least one communication schedule is provided in serial fashion.
- 5 6. The method of claim 1 wherein the communication schedule provides a schedule for forwarding traffic to or from the at least one compatible communication node.
7. The method of claim 1 wherein the communication schedule provides a schedule for exchanging scheduling information with the at least one  
10 compatible communication node.
8. The method of claim 1 wherein the communication schedule provides a schedule for forwarding traffic to or from the at least one compatible communication node and for exchanging scheduling information with the at least one compatible communication node.
- 15 9. The method of claim 1 wherein the communication nodes in the wireless communication network maintain independent clocks, which are not synchronized with one another.
10. The method of claim 1 further comprising providing a plurality of  
20 queues for traffic to send to the at least one compatible communication node and corresponding to a plurality of quality of service levels, wherein determining the communication schedule provides scheduling sufficient to ensure communications with the at least one compatible communication node occur according to an appropriate quality of service.
- 25 11. The method of claim 1 wherein the communication schedule defines transmission opportunities during which communications with the at least one compatible communication node are scheduled to take place.

12. The method of claim 11 wherein the transmission opportunities are variable in length.
13. The method of claim 12 wherein the lengths of the transmission opportunities are based on communication or scheduling related parameters.
14. The method of claim 11 wherein certain packets are scheduled to hop through a plurality of compatible communication nodes during a given transmission opportunity.
15. The method of claim 11 wherein communications with a plurality of compatible communication nodes are scheduled to occur during a given transmission opportunity.
16. The method of claim 1 wherein the scheduling information comprises communication parameter information, and the communication schedule is determined, in part, based on the communication parameter information.
17. The method of claim 1 wherein the scheduling information comprises at least one of collision information pertaining to past transmission opportunities and susceptibility information pertaining to future available transmission opportunities that may likely be subjected to interference.
18. A communication node comprising:
- at least one wireless communication interface; and
  - a control system associated with the at least one wireless communication interface and adapted to:
    - exchange scheduling information with at least one compatible communication node in a wireless communication network;

- determine a communication schedule for communications with the at least one compatible communication node based on the scheduling information; and
  - communicate with the at least one compatible communication node based on the communication schedule, wherein communication nodes in the wireless communication network independently determine communication schedules with other compatible communication nodes.
- 5
- 10 19. The communication node of claim 18 wherein communications with each of the at least one compatible communication node are established over at least one corresponding communication link, which does not contend with other communication links in the wireless communication network during scheduled communications.
- 15 20. The communication node of claim 18 wherein communications with the at least one compatible communication node are established over a plurality of communication links, which do not contend with each other or with other communication links in the wireless communication network during scheduled communications.
- 20 21. The communication node of claim 18 wherein the at least one compatible communication node is a plurality of compatible communication nodes, and at least one communication schedule is established for controlling communications with each of the plurality of compatible communication nodes.
- 25 22. The communication node of claim 21 wherein scheduling embodied in the at least one communication schedule for each of the plurality of compatible communication nodes within the at least one communication schedule is provided in serial fashion.

23. The communication node of claim 18 wherein the communication schedule provides a schedule for forwarding traffic to or from the at least one compatible communication node.
- 5 24. The communication node of claim 18 wherein the communication schedule provides a schedule for exchanging scheduling information with the at least one compatible communication node.
- 10 25. The communication node of claim 18 wherein the communication schedule provides a schedule for forwarding traffic to or from the at least one compatible communication node and for exchanging scheduling information with the at least one compatible communication node.
26. The communication node of claim 18 wherein the communication nodes in the wireless communication network maintain independent clocks, which are not synchronized with one another.
- 15 27. The communication node of claim 18 further comprising providing a plurality of queues for traffic to send to the at least one compatible communication node and corresponding to a plurality of quality of service levels, wherein determining the communication schedule provides scheduling sufficient to ensure communications with the at least one compatible communication node occur according to an appropriate quality of service.
- 20 28. The communication node of claim 18 wherein the communication schedule defines transmission opportunities during which communications with the at least one compatible communication node are scheduled to take place.
- 25 29. The system of claim 28 wherein the transmission opportunities are variable in length.

30. The system of claim 29 wherein the lengths of the transmission opportunities are based on communication or scheduling related parameters.
- 5 31. The communication node of claim 28 wherein certain packets are scheduled to hop through a plurality of compatible communication nodes during a given transmission opportunity.
32. The communication node of claim 28 wherein communications with a plurality of compatible communication nodes are scheduled to occur during a given transmission opportunity.
- 10 33. The system of claim 18 wherein the scheduling information comprises communication parameter information, and the communication schedule is determined, in part, based on the communication parameter information.
- 15 34. The system of claim 18 wherein the scheduling information comprises at least one of collision information pertaining to past transmission opportunities and susceptibility information pertaining to future available transmission opportunities that may likely be subjected to interference.